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Cheung et al. - GAU 2616 (Moore)
Docket No. 50325-0796
Response to Non-final Office Action mailed 7/31/07

AMENDMENTS TO THE CLAIMS

The following list of claims replaces all prior versions and lists of claims:

1.   (Currently Amended) A method of determining an amount of bandwidth needed on a link, the method comprising:

receiving a grade of service (GoS) factor and a quality of service (QoS) factor, wherein the GoS factor specifies a maximum call blocking probability for said link and the QoS factor specifies a maximum packet loss probability for said link;

determining, for each of one or more amounts of bandwidth, a plurality of state probabilities based on the GoS factor and a plurality of marginal packet loss probabilities based on the QoS factor, wherein said determining is performed based on user behavior and traffic characteristics;

determining, based on user behavior and traffic characteristics, said amount;

wherein the determining comprises selecting one of the one or more amounts of bandwidth using the plurality of state probabilities and the plurality of marginal packet loss probabilities; and

storing said amount in memory.

2.   (Original)   The method of Claim 1, wherein said user behavior comprises an average time between arrivals of calls made by one or more users using said link.

3.   (Original)   The method of Claim 1, wherein said user behavior comprises an average duration of calls made by one or more users using said link.

4.   (Original)   The method of Claim 1, wherein said traffic characteristics comprise an average time between arrivals of packets on said link.

5.   (Original)   The method of Claim 1, wherein said traffic characteristics comprise an average duration of periods during which packets are transmitted relatively continuously on said link.

6.   (Original)   The method of Claim 1, wherein determining said amount is based on a

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specified number of users.

7-10.   (Canceled)

11.   (Original)   The method of Claim 1, wherein determining said amount is based on a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link.

12.   (Currently Amended) The method of Claim 1, wherein determining said amount is based on a probability that a packet will be lost when said packet is sent through [[a]]said link that:

has a specified amount of bandwidth; and

is being used by a specified number of users.

13.   (Currently Amended) The method of Claim 1, wherein determining said amount is based on a product of:

a probability that a specified number of users are using said link when a specified

        maximum call blocking probability requirement is satisfied relative to said link;
        and

a probability that a packet will be lost when said packet is sent through [[a]]said link that:
        has a specified amount of bandwidth; and
        is being used by said specified number of users.

14-19. (Canceled)

20.   (Currently Amended) A computer-readable storage medium carrying one or more sequences of instructions for determining an amount of bandwidth needed on a link, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

receiving a grade of service (GoS) factor and a quality of service (QoS) factor, wherein

        the GoS factor specifies a maximum call blocking probability for said link and the

        QoS factor specifies a maximum packet loss probability for said link;

determining, for each of one or more amounts of bandwidth, a plurality of state

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probabilities based on the GoS factor and a plurality of marginal packet loss

probabilities based on the QoS factor, wherein said determining is performed

based on user behavior and traffic characteristics;

determining, based on user behavior and traffic characteristics, said amount;

wherein the determining comprises selecting one of the one or more amounts of

bandwidth using the plurality of state probabilities and the plurality of marginal

packet loss probabilities; and

storing said amount in memory.

21.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein said

user behavior comprises an average time between arrivals of calls made by one or more

users using said link.

22.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein said

user behavior comprises an average duration of calls made by one or more users using

said link.

23.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein said

traffic characteristics comprise an average time between arrivals of packets on said link.

24.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein said

traffic characteristics comprise an average duration of periods during which packets are

transmitted relatively continuously on said link.

25.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein

determining said amount is based on a specified number of users.

26-29. (Canceled)

30.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein

determining said amount is based on a probability that a specified number of users are

using said link when a specified maximum call blocking probability requirement is

satisfied relative to said link.

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31.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein determining said amount is based on a probability that a packet will be lost when said packet is sent through [[a]]said link that:

has a specified amount of bandwidth; and

is being used by a specified number of users.

32.   (Currently Amended) The computer-readable storage medium of Claim 20, wherein determining said amount is based on a product of:

a probability that a specified number of users are using said link when a specified

      maximum call blocking probability requirement is satisfied relative to said link;

      and

a probability that a packet will be lost when said packet is sent through [[a]]said link that:

      has a specified amount of bandwidth; and

      is being used by said specified number of users.

33.   (Currently Amended) An apparatus for determining an amount of bandwidth needed on a link, comprising:

means for receiving a grade of service (GoS) factor and a quality of service (QoS) factor,

      wherein the GoS factor specifies a maximum call blocking probability for said

      link and the QoS factor specifies a maximum packet loss probability for said link;

means for determining, for each of one or more amounts of bandwidth, a plurality of state

      probabilities based on the GoS factor and a plurality of marginal packet loss

      probabilities based on the QoS factor, wherein said determining is performed

      based on user behavior and traffic characteristics;

means for determining, based on user behavior and traffic characteristics, said amount;

wherein the determining comprises selecting one of the one or more amounts of

      bandwidth using the plurality of state probabilities and the plurality of marginal

      packet loss probabilities; and

means for storing said amount in memory.

34.   (Original)   The apparatus of Claim 33, wherein said user behavior comprises an

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average time between arrivals of calls made by one or more users using said link.

35. (Original) The apparatus of Claim 33, wherein said user behavior comprises an average duration of calls made by one or more users using said link.

36. (Original) The apparatus of Claim 33, wherein said traffic characteristics comprise an average time between arrivals of packets on said link.

37. (Original) The apparatus of Claim 33, wherein said traffic characteristics comprise an average duration of periods during which packets are transmitted relatively continuously on said link.

38. (Original) The apparatus of Claim 33, wherein determining said amount is based on a specified number of users.

39-42. (Canceled)

43. (Original) The apparatus of Claim 33, wherein determining said amount is based on a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link.

44. (Currently Amended) The apparatus of Claim 33, wherein determining said amount is based on a probability that a packet will be lost when said packet is sent through [[a]]said link that:
has a specified amount of bandwidth; and
is being used by a specified number of users.

45. (Currently Amended) The apparatus of Claim 33, wherein determining said amount is based on a product of:
a probability that a specified number of users are using said link when a specified
        maximum call blocking probability requirement is satisfied relative to said link;
        and
a probability that a packet will be lost when said packet is sent through [[a]]said link that:

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has a specified amount of bandwidth; and

is being used by said specified number of users.

46.   (Currently Amended) An apparatus for determining an amount of bandwidth needed on a link, comprising:

a network interface that is coupled to a data network for receiving one or more packet flows therefrom;

a processor; and

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

receiving a grade of service (GoS) factor and a quality of service (QoS) factor, wherein the GoS factor specifies a maximum call blocking probability for said link and the QoS factor specifies a maximum packet loss probability for said link;

determining, for each of one or more amounts of bandwidth, a plurality of state probabilities based on the GoS factor and a plurality of marginal packet loss probabilities based on the QoS factor, wherein said determining is performed based on user behavior and traffic characteristics;

determining, based on user behavior and traffic characteristics, said amount;

wherein the determining comprises selecting one of the one or more amounts of bandwidth using the plurality of state probabilities and the plurality of marginal packet loss probabilities; and

storing said amount in memory.

47.   (Original)   The apparatus of Claim 46, wherein said user behavior comprises an average time between arrivals of calls made by one or more users using said link.

48.   (Original)   The apparatus of Claim 46, wherein said user behavior comprises an average duration of calls made by one or more users using said link.

49.   (Original)   The apparatus of Claim 46, wherein said traffic characteristics comprise an

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average time between arrivals of packets on said link.

50.   (Original)   The apparatus of Claim 46, wherein said traffic characteristics comprise an average duration of periods during which packets are transmitted relatively continuously on said link.

51.   (Original)   The apparatus of Claim 46, wherein determining said amount is based on a specified number of users.

52-55. (Canceled)

56.   (Original)   The apparatus of Claim 46, wherein determining said amount is based on a probability that a specified number of users are using said link when a specified maximum call blocking probability requirement is satisfied relative to said link.

57.   (Currently Amended) The apparatus of Claim 46, wherein determining said amount is based on a probability that a packet will be lost when said packet is sent through [[a]]said link that:
has a specified amount of bandwidth; and
is being used by a specified number of users.

58.   (Currently Amended) The apparatus of Claim 46, wherein determining said amount is based on a product of:
a probability that a specified number of users are using said link when a specified
        maximum call blocking probability requirement is satisfied relative to said link;
        and
a probability that a packet will be lost when said packet is sent through [[a]]said link that:
        has a specified amount of bandwidth; and
        is being used by said specified number of users.

59.   (Canceled)